

# Innovation results

AN R&D CASE STUDY

#029

## Off the radar

Technology developed by BAE Systems to reduce radar interference caused by wind turbines will ensure that more turbines get the go-ahead as part of the global fight against climate change.

### The need

The number of wind farms being developed on and off shore in the UK is increasing. But objections to their size and location are also on the rise and the process for getting approval is fraught with difficulties.

Wind turbines can cause significant interference with national air traffic control services, as well as military, maritime and coastguard radars, hampering their ability to detect aircraft or marine vessels passing nearby.

The UK's offshore wind resource is vast, with the potential to provide more than the UK's current demand for electricity. So it's vital that they can be operated without causing such interference.

### The results

With the help of investment from the Technology Strategy Board, BAE Systems' Advanced Technology Centre (ATC) and partners have developed a revolutionary 'stealth' technology that will help to reduce the radar interference from a wind turbine.

Although the problem can't be totally eradicated, the technology has been welcomed as a possible solution to objections over interference and will help countries meet increasingly stringent targets for renewable energy.

Components of the new wind turbines have been shaped and fitted with radar absorbent materials to reduce their radar signatures. This reduces the impact on radar systems and therefore improves the visibility of military and

civil air and marine traffic when they are in the vicinity of the wind farm.

Special software can determine the actual decrease in radar interference. After three years of research and development, the concept is now ready to be tested in the field by building a wind turbine fitted with the new technology.

BAE Systems believes the technology has the potential to be used worldwide, and negotiations are under way with a UK wind farm developer and a wind turbine manufacturer. The new wind turbine is expected to go into full production by 2013. According to the people behind the project, within five years a new breed of wind turbine could be springing up across the globe.

# Unlocking the potential

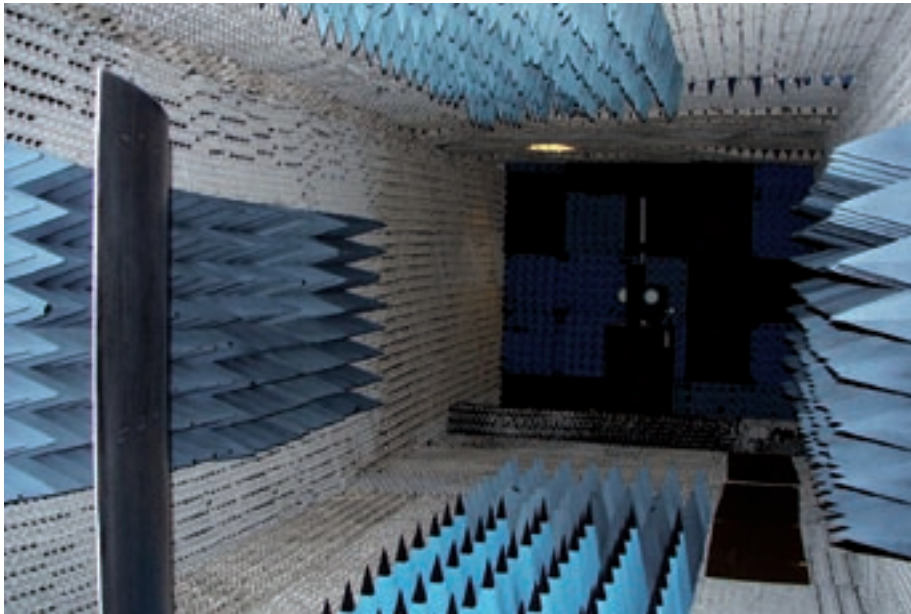
On-shore wind farms play a vital role in helping the UK meet its obligations on climate change, according to the British Wind and Energy Association. The UK has a target for 10% of electricity to come from renewable sources by 2010, and 15% by 2015. According to the Department of Energy & Climate Change most of the increase in electricity derived from renewables will come from wind power. The UK has also signed up to the

European target for 20% of the EU's energy consumption to come from renewable sources by 2020. Yet despite these pressures many wind farm applications can get stuck in the planning process. BAE Systems believes its new-generation wind turbine will help ease any planning bottlenecks by addressing the cause of most of the objections and instilling confidence in future investors in the sector.



‘Thanks to the investment from the Technology Strategy Board we have been able to develop a revolutionary technology that could unlock the full potential of wind power,’

JON PINTO, TEAM LEADER,  
ELECTROMAGNETICS, BAE SYSTEMS



## Technology Strategy Board Driving Innovation

Collaborative research and development projects are one of the tools that the Technology Strategy Board uses to drive innovation in the UK. The Technology Strategy Board is a business-led executive non-departmental public

body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the Department for Business, Innovation and Skills (BIS).

Tel: 01793 442700 [www.innovateuk.org](http://www.innovateuk.org)

**Project no.** 10117

### Project partners

BAE Systems Advanced Technology Centre; Essex; University of Manchester; University of Sheffield; Vestas Technology UK Ltd

**Technology Strategy Board investment** £445,000

**Total project investment** £1.14m

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